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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/791,014	03/02/2004	Chung-Shi Liu	2000-0488 / 24061.596	1306
42717 75	90 08/17/2005		EXAMINER	
HAYNES AND BOONE, LLP			ABRAHAM, FETSUM	
901 MAIN STREET, SUITE 3100 DALLAS, TX 75202			ART UNIT	PAPER NUMBER
,			2826	
			DATE MAILED: 08/17/200	5

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)				
	10/791,014	LIU ET AL.				
Office Action Summary	Examiner	Art Unit				
·	Fetsum Abraham	2826				
The MAILING DATE of this communical Period for Reply	tion appears on the cover sheet wi	th the correspondence address				
A SHORTENED STATUTORY PERIOD FOR THE MAILING DATE OF THIS COMMUNICA - Extensions of time may be available under the provisions of 3 after SIX (6) MONTHS from the mailing date of this communi - If the period for reply specified above is less than thirty (30) d - If NO period for reply is specified above, the maximum statut - Failure to reply within the set or extended period for reply will Any reply received by the Office later than three months after earned patent term adjustment. See 37 CFR 1.704(b).	ATION. 7 CFR 1.136(a). In no event, however, may a re- cation. ays, a reply within the statutory minimum of thirt bry period will apply and will expire SIX (6) MON' by statute, cause the application to become AB	eply be timely filed y (30) days will be considered timely. THS from the mailing date of this communication. ANDONED (35 U.S.C. § 133).				
Status						
1) Responsive to communication(s) filed	on <u>14 April 2005</u> .					
2a) This action is FINAL . 2b)	This action is non-final.					
	Since this application is in condition for allowance except for formal matters, prosecution as to the ments is closed in accordance with the practice under <i>Ex parte Quayle</i> , 1935 C.D. 11, 453 O.G. 213.					
Disposition of Claims						
4) Claim(s) 23-44 is/are pending in the ap	4)⊠ Claim(s) <u>23-44</u> is/are pending in the application.					
	4a) Of the above claim(s) <u>23-34</u> is/are withdrawn from consideration.					
5)⊠ Claim(s) <u>38-44</u> is/are allowed.	·					
6)⊠ Claim(s) <u>35-37</u> is/are rejected.	<u>.</u>					
7) Claim(s) is/are objected to.						
8) Claim(s) are subject to restriction	n and/or election requirement.	•				
Application Papers		·				
9) The specification is objected to by the E	xaminer	•				
•	☐ The drawing(s) filed on is/are: a)☐ accepted or b)☐ objected to by the Examiner.					
Applicant may not request that any objection						
Replacement drawing sheet(s) including the		` '				
11) The oath or declaration is objected to b	•	• • • • • • • • • • • • • • • • • • • •				
Priority under 35 U.S.C. § 119						
12) ☐ Acknowledgment is made of a claim for	foreign priority under 35 U.S.C. §	119(a)-(d) or (f).				
a)□ All b)□ Some * c)□ None of:	3 , , , , , , , , , , , , , , , , , , ,					
1. Certified copies of the priority do	cuments have been received.					
	cuments have been received in A	pplication No.				
	he priority documents have been					
application from the Internationa						
* See the attached detailed Office action f	or a list of the certified copies not	received.				
Attachment(s) 1) Notice of References Cited (PTO-892)	4) ☐ Interview S	ummary (PTO-413)				
2) Notice of Draftsperson's Patent Drawing Review (PTO	-948) Paper No(s)/Mail Date				
 Information Disclosure Statement(s) (PTO-1449 or PT Paper No(s)/Mat Date <u>4/15/04</u>. 	O/SB/08) 5)	formal Patent Application (PTO-152) ·				

DETAILED ACTION

The election made in the last response has been acknowledged and the nonelected claims 23-34 have been withdrawn from consideration.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 35-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsai et al (6,319,814).

The prior art discloses a wiring structure in the front page comprising a semiconductor substrate (200), a layer of FSG (210) on the substrate, a layer of USG (216) on the FSG layer, a via hole through the layers down to the upper surface of the substrate and filled with a predetermined material (222). Although the prior art may have included a starting USG layer on the substrate before depositing the FSG layer, it however reads on the claimed structure for one skilled in the art to relate the art to the claimed invention, since the USG layer (2160 is deposited on the FSG layer indirectly.

As for claims 36-37, layer thickness and material composition are known variables in the art that differ from a design to another based on many reasons such as capacitance, isolation requirements, mechanical support, and material characteristics dominance in a composite layer. Such variations exist in the art and cannot be patented unless proven to be critical. In this case, the specification contains no disclosure of either the critical nature of the claimed arrangement or any unexpected results arising

Art Unit: 2826

therefrom. Where patentability is said to be based upon particular chosen dimensions or upon another variable recited in a claim, the applicant must show that the chosen dimensions are critical. In re Woodruff, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990).

Claims 38-44 have been allowed.

The claimed single and double damascene contact structures composed of the claimed layers and the barrier layer on the walls of the contact hole through FSG and USG layers filled with copper having upper surface that is substantially flush with the USG upper surface is not taught or rendered obvious by the prior arts.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fetsum Abraham whose telephone number is: 571-272-1911. The examiner can normally be reached on 8:00 - 18:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan J Flynn can be reached on 571-272-1915.

elsum Apraham